TABLE OF CONTENTS

Vol. 57 Nos. 1–2 1993

Proceedings of the International Astronomical Symposium held in Pléneuf-Val-André (France) from June 21 to June 28, 1992

INTERACTIONS BETWEEN PHYSICS AND DYNAMICS OF THE SOLAR SYSTEM BODIES

Preface vii

Asteroids

PETIT J-M and FARINELLA P. / Modelling the outcomes of high-velocity impacts between small solar system bodies 1
BENDJOYA P. / A comparison between 2*D* and 3*D* wavelet analysis method for asteroid family dynamical study 29
CELLINO A. and ZAPPALÀ V. / Asteroid "clans": super-families or multiple events? 37
PAOLICCHI P., VERLICCHI A. and CELLINO A. / Catastrophic fragmentation and formation of families: preliminary results from a new numerical model 49
NAKAMURA T. / Structure of the asteroid belt for small members 57
MILANI A. / The Trojan asteroid belt: Proper elements, stability, chaos and families 59
HADJIDEMETRIOU J.D. and VOYATZIS G. / Long term evolution of asteroids near a resonance 95
ROBUTEL Ph. / The stability of the planetary three-body problem: influence of the secular resonances 97
MOONS M. and MORBIDELLI A. / The main mean motion commensurabilities in the planar circular and elliptic problem 99

Comets

BENEST D. and GONCZI R. / Stochasticity of two comets in resonance with Jupiter 109
NAKAMURA T. and YOSHIKAWA M. / Orbital evolution of giant comet-like objects 113

FROESCHLÉ C. and PETIT J-M. / On a temporary confinement of chaotic orbits of four dimensional symplectic mapping: a test on the validity of the synthetic approach 123
CHAMBERS J.E. / A simple mapping for comets in resonance 131

Artificial Satellites

EXERTIER P. / Geopotential from space techniques 137
DELHAISE F. and MORBIDELLI A. / Luni-solar effects of geosynchronous orbits at the critical inclination 155
METRIS G., EXERTIER P., BOUDON Y. and BARLIER F./ Long-periodic variations of the motion of a satellite due to non-resonant tesseral harmonics of a gravity potential 175
FERRÁNDIZ J.M., SANSATURIO M.E. and CABALLERO R. / On the roto-translatory motion of a satellite of an oblate primary 189
FLORÌA: Canonical elements and Keplerian-like solutions for intermediary orbits of satellites of an oblate planet 203
VOKROUHLIKÝ D., FARINELLA P. and LUCCHESI D. / Albedo perturbation models: general formalism and applications to LAGEOS 225
STEICHEN D. / Study of a Moon's artificial satellite dynamics valid for all eccentricities and inclinations 245

Geodynamics

LEGROS H. and LEFFTZ M. / On the fluid and viscoelastic deformations of the planets 247
FERRÁNDIZ J.M. and GETINO J. / On the tidal variation of the geopotential 279

Attitude Dynamics

LASKAR J. and JOUTEL F. / Orbital, rotational and climate interactions 293
BOIS E. and JOURNET A. / Lunar and terrestrial tidal effects on the Moon's rotational motion 295
ECKHARDT D. / Passing through resonance: the excitation and dissipation of the Lunar free libration in longitude 307
CELLETTI A. / Stability of the synchronous spin-orbit resonance by construction of librational trapping tori 325
WINTER O.C. and SESSIN W. / Nebular drag and capture into spin-orbit resonance 329

Natural Satellites

STEVES B.A., VALSECCHI G.B., PEROZZI E. and ROY A.E. / Significant high number commensurabilities in the main Lunar problem II: The occurence of Saros-like near periodicities 341

KINOSHITA H. / Motion of the orbital plane of a satellite due to a secular change of the obliquity of its mother planet 359
LOHINGER E. and FROESCHLÉ C. / Fourier analysis of local Lyapunov characteristic exponents for satellite-type motions 369

Dust Dynamics

SICARDY B. , BEAUGÉ C., FERRAZ-MELLO S., LAZZARO D. and ROQUES F. / Capture of grains into resonances through Poynting-Robertson drag 373
SPAHN F., PETIT J-M. and BENDJOYA Ph. / The gravitational influence of satellite Pan on the radial distribution of ring-particles in the region of the Encke-division in Saturn's A ring 391

Abstracts

CAMPO BAGATIN A., FARINELLA P. and PAOLICCHI P. / Collisional evolution of the asteroid size distribution: a numerical simulation 403
BARKIN Yu.V. / Resonant and secular phenomena in the libration of the Moon 404
BONNEFOND P. and EXERTIER P. / Precise orbit determination with a short-arc technique 405
BOIS E. and BREITER S. / Spherical coordinates perturbations for small eccentricity orbits 406
BRUNINI A. / Dynamical friction induces perturbations on Oort cloud comets 406
KLAČKA J. and KAUFMANNOVÁ J. / Poynting-Robertson effects 407
LEFFTZ M. and LEGROS H. /Influence of internal load on the non-hydrostatic form of the Moon 408
SOLOVAYA N.A. and PITTICH E.M. / Evolution of asteroidal orbits with high inclinations 409

Vol. 57 No. 3 1993

ERNESTO A. LACOMBA and ERNESTO PÉREZ-CHAVELA / Motions Close to Escapes in the Rhomboidal Four Body Problem 411

SEPPO MIKKOLA and SVERRE J. AARSETH / An Implementation of *N*-Body Chain Regularization 439

GEORGE BOZIS and SIMELA GRIGORIADOU / Families of Planar Orbits Generated by Homogeneous Potentials 461

J. H. LIESKE / Algorithm for IAU North Poles and Rotation Paramaters – Which Way is Up? 473

DAVID VOKROUHLICKÝ and LADISLAV SEHNAL / Cloud Coverage Aspects of the Albedo Effect 493

Acknowledgment of Referees 509

Corrigendum 515

Vol. 57 No. 4 1993

F. VÁRADI / Branching Solutions and Lie Series 517

NEIL ASHBY and TIMOTHY ALLISON / Canonical Planetary Perturbation Equations for Velocity-Dependent Forces, and the Lense-Thirring Precession 537

MICHAEL E. HOUGH / Analytic Continuation of Quasi-Periodic Orbits from Non-Linear Periodic Modes 587

The 'KLUWER' LaTeX Style File: Instructions for Authors 619

Volume Contents 627